

REMARKS

The following remarks are responsive to the points raised in the March 26, 2004 non-final Office Action. Upon entry of the this Amendment, Claims 1, 3, 5, 8, 11, and 13 will have been amended, Claims 2, 4, 6, 9, 12, and 14 will have been canceled, and Claims 1, 3, 5, 7, 8, 10, 11, and 13 will be pending. No new matter has been introduced. Entry and reconsideration are respectfully requested.

Response to the Rejection Under 35 U.S.C. § 103(a)

Claims 1-14 have been rejected under 35 U.S.C. § 103(a) as being obvious over Oshima et al. ((Oshima) US Patent 5,526,045) in view of Hwang (US Patent 6,122,004) in further view of Takase et al. ((Takase) US Patent 5,502,483). Applicant traverses this rejection and respectfully submits that Oshima, Hwang, and Takase, either alone or in combination, do not teach, suggest, or otherwise render obvious, the subject matter recited in Claims 1, 3, 7, 8, 10, 11, and 13.

Independent Claim 1 recites an image sensing method including, inter alia:

“a delaying step of delaying the read image signal by a predetermined time;” and

“an adding step of adding first pixel data in the read image signal to second pixel data neighboring said first pixel data in the delayed image signal, delayed in said delaying step, in accordance with a predetermined addition ratio based on the calculating result of said calculating step in a moving image recording mode.”

Such differences are consistent with the Examiner’s admitted differences identified on Page 3, Lines 4-8, and Page 4, Lines 5-9, of the March 26, 2004 non-final Office Action. The Examiner, however, attempts to remedy the admitted deficiencies of Oshima by relying on the secondary

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teaching of Hwang and the tertiary teaching of Takase.

In contrast, Oshima discloses an electronic vibration correction method in which signal transferring from an image sensing device is divided into a high-velocity transfer mode and a normal transfer mode, and the number of pixels transferred in the high-velocity transfer mode is controlled. Oshima teaches an anti-resolving power of a pitch of two pixels. As previously discussed, the electronic vibration correction method taught by Oshima neither delays the read image signal by a predetermined time nor adds first pixel data in the read image signal to second pixel data neighboring the first pixel data in the delayed image signal in accordance with a predetermined addition ratio based on the calculating result of the calculating step in a moving image recording mode.

The Examiner urges that the secondary reference of Hwang:

“teaches in Figure 6 and in Column 4, Lines 44-66, the use of a delaying step of delaying the read image signal by [a] predetermined time (66 and 63). An adding step (65) of adding the read image signal to the delayed image signal, delayed in the delaying step, at a predetermined addition ratio based on the calculating result of the calculating step in a moving image recording mode. An addition control step of prohibiting addition of the adding step in a still recording mode. The delay step for delaying the read image signal by a predetermined time is performed by the first buffer and the image shifting means. The image adding means adds the delayed read image signal output by the image shifting means (63) with the read image signal output by the second buffer (64). The predetermined adding ratio changes in that the amount of image in the second buffer (64) added to the delayed image is proportional to how much shift was imposed on the image in the shifting means (63) controlled by the motion detector. Further, it is inherent that if the image was a still image no shifting would take place in the image shifting means (63) and therefore, no portion of the image in the second buffer (64) would be added to the delayed image.”

From here, the Examiner concludes that:

“it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the camera of Oshima et al so that the output image signals from the image sensor can be processed by the image signal correction circuit of Hwang to enable the camera of Hwang to better process both still and

motion video.”

The Examiner further urges that the tertiary teaching of Takase:

“teaches on Column 3, Lines 57-67 and Column 4, Lines 4-16 and Column 2, Lines 55-60 that is advantageous when correcting for image vibration to allow the camera to correct for a movement amount that is less than one pixel area by performing interpolation by adding in a weighted manner the pixel data from adjacent lines of pixel data. Takase et al teaches that this is advantageous because it allows the deterioration of a resolution to be suppressed.”

From here the Examiner further concludes that:

“[t]herefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to enable the camera of Oshima et al in view of Hwang to correct for motion that is less than [sic] the distance of one pixel by performing interpolation by adding in a weighted manner the pixel data from adjacent lines of pixel data as taught by Takase et al in order to allow the deterioration of a resolution to be suppressed.”

Hwang, in regard to Figure 6, discloses, in Column 4, Lines 44-65, that:

“FIG. 6 is a block diagram of the image stabilizing circuit according to the first embodiment of the invention. As shown in FIG. 6, the image stabilizing circuit comprises a CCD 61, a first buffer 66, a motion detector 62, an image shifting means 63, a second buffer 64 and an image adding means 65. The CCD 61 receives light signals from objects, and produces image signals corresponding to the light signals. The first buffer 66 temporarily stores the image signals for shifting the image signal. The motion detector 62 is provided for analyzing the input image signals to detect the trembling motion of the input image signals. The image shifting means 63 shifts a frame of the image signals stored in the first buffer 66 according to an output of the motion detector 62, and thereby produces a shifted frame comprising a shifted portion of the image and a remaining portion with no image. The second buffer 64 is provided for storing the previous image signals output from the first buffer 66. Finally, the image adding means 65 is provided for adding the shifted portion of the image and a portion of the previous image stored in the second buffer, wherein the portion stored in the second buffer corresponds to the remaining portion of the shifted frame, and for producing the output images.”

Takase, in Column 2, Lines 55-60, Column 3, Lines 57-67, and Column 4, Lines 4-16, discloses that:

“According to the present invention, similarly to the prior art, the scanning

area of the imager can be moved at the unit smaller than the pixel unit within the photo-sensitive pixel area by changing the interpolation coefficient of the interpolation processing circuit in response to the amount of vibration...” (Column 2, Lines 55-60);

“The vibration detection sensor 12 detects vibrations of horizontal and vertical directions of the video camera apparatus when a handling occurs, and outputs a detected signal. When the control switch 10 is depressed, the control circuit 9 reads the detected signal d of the vibration detection sensor 12 and calculates a moving amount of the scanning area of the imager 2 within the photo)sensitive pixel area of the imager 2 in order to cancel the picture vibration occurred due to the handling or the like. Then, the control circuit 9 supplies data to the scanning pulse generating circuit 5 which generates a scanning pulse used to energize the” (Column 3, Lines 57-67); and

“The scanning pulse generating circuit 5 generates scanning pulses corresponding to the data supplied thereto from the control circuit 9 as shown in FIGS. 4A through 4C. Also, the interpolation processing circuit 7 performs the interpolation processing by an interpolation coefficient .alpha. corresponding to the data supplied thereto from the control circuit 9. A signal generated by the interpolation processing in the interpolation processing circuit 7 is supplied through the digital interface 8 to the signal processing circuit 6. Thus, the signal processing circuit 6 derives a video signal in which a deterioration of a resolution can be suppressed and in which an image vibration due to a handling or the like can be avoided.” (Column 4, Lines 4-16).

No where in the above words of either Hwang and/or Takase is it seen where Hwang and/or Takase, either alone or in combination, teach or suggest an image sensing method including a delaying step of delaying the read image signal by a predetermined time and an adding step of adding first pixel data in the read image signal to second pixel data neighboring said first pixel data in the delayed image signal, delayed in said delaying step, in accordance with a predetermined addition ratio based on the calculating result of said calculating step in a moving image recording mode as recited in Claim 1. Furthermore, no where is it seen where Oshima, Hwang and Takase provide any motivation that would lead one of ordinary skill in the art at the time the invention was made to modify the teaching of Oshima in view of Hwang and in further

view of Takase to arrive at the invention recited in Claim 1 as proposed by the Examiner.

The Examiner has not provided any specific discussion or line of reasoning identifying some suggestion or motivation, either in the references themselves or in the knowledge available to one of ordinary skill in the art that suggests modifying the Oshima teaching, as proposed by the Examiner, in view of the secondary teaching of Hwang, and in further view of the tertiary teaching of Takase, with a reasonable expectation of success, without rendering Oshima unsatisfactory for its intended purpose, and without changing Oshima's principle of operation.

The Examiner, on page 4, Line 7-9 of the non-final Office Action, opines that one of ordinary skill in the art would have been motivated to modify Oshima in view of Hwang "so that the output image signals from the image sensor can be processed by the image signal correction circuit of Hwang to enable the camera of Hwang [sic] to better process both still and motion video." In addition, the Examiner, on page 4, Line 15-19 of the non-final Office Action, opines that one of ordinary skill in the art would have been motivated to further modify Oshima, as modified by Hwang, in further view of Takase "to correct for motion that is less than [sic] the distance of one pixel by performing interpolation by adding in a weighted manner the pixel data from adjacent lines of pixel data as taught by Takase et al in order to allow the deterioration of a resolution to be suppressed."

In contrast however, Oshima teaches that their disclosed invention successfully overcomes the shortcomings of the prior art and successfully provides a small-size, light-weight, low-cost camera apparatus capable of producing stabilized images. No where is it seen where Oshima provides any teaching or suggestion that would motivate one of ordinary skill in the art to modify Oshima as suggested by the Examiner. Likewise, no where is it seen where Hwang and/or Takase provide any teaching or suggestion that would motivate one of ordinary skill in the

art to modify Oshima as suggested by the Examiner. It is not seen how or why one of ordinary skill in the art would be motivated to modify Oshima to “better process both still and motion video” or to “allow the deterioration of a resolution to be suppressed”, since Oshima acknowledges that their invention (1) overcomes the shortcomings of the prior art and (2) provides a small-size, light-weight, low-cost camera apparatus capable of producing stabilized images. Takase is silent regarding a technique for permitting or prohibiting to add line data (or pixel data) of the read image signal from an image sensing device mutually based on a predetermined condition in the system to compensate for influence of vibration of the image sensing device. Takase is also silent regarding a technique for switching no addition method and addition method to add line data (or pixel data) of the read image signal from an image sensing device mutually according to switching an image recording mode (such as a still image recording mode and a moving image recording mode). It is not seen how or why one of ordinary skill in the art would be motivated to modify Oshima to “better process both still and motion video” or to “allow the deterioration of a resolution to be suppressed”, since Oshima acknowledges that their invention (1) overcomes the shortcomings of the prior art and (2) provides a small-size, light-weight, low-cost camera apparatus capable of producing stabilized images.

In view of the above, the image sensing method as recited in Claim 1 is distinguished over the applied prior art references of Oshima, Hwang, and Takase, either alone or in combination. Independent Claims 3, 5, 8, 11, and 13 include subject matter corresponding with the differences discussed above with respect to Claim 1. As such, Claims 3, 5, 8, 11, and 13 are likewise distinguished over Oshima, Hwang, and Takase for the same reasons as Claim 1. Furthermore, dependent Claims 2, 4, 6, 7, 9, 10, 12, and 14 are also distinguished over Oshima, Hwang, and Takase since each of these claims depend from one of Claims 1, 3, 5, 8, 11, and 13.

Accordingly, the rejection of Claims 1-14 under 35 U.S.C. § 103(a) over Oshima in view of Hwang and in further view of Takase should be withdrawn.

CONCLUSION

Applicant respectfully submits that Claims 1-14 are in condition for allowance and a notice to that effect is earnestly solicited.

AUTHORIZATIONS

The Commissioner is hereby authorized to charge any additional fees which may be required for filing this application, or credit any overpayment to Deposit Account No. 13-4500, Order No. 1232-4511. A DUPLICATE COPY OF THIS SHEET IS ATTACHED.

Respectfully submitted,

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